APPLICATION FOR UNITED STATES PATENT

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Invention: SYSTEM AND METHOD FOR PLACING ORDERS AT A RESTAURANT

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1 SYSTEM AND METHOD FOR PLACING ORDERS AT A RESTAURANT

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3 <u>CROSS-REFERENCE TO RELATED APPLICATIONS</u>

4 The present application is based upon and gains priority from U.S. Provisional

5 Patent Application Serial No. 60/277,719, filed March 22, 2001 by the inventor herein

6 and entitled "System And Method For Placing Orders At A Restaurant," the specification

7 of which is incorporated herein by reference.

8

9 <u>FIELD OF THE INVENTION</u>

10 This invention relates to a remote ordering system for a restaurant. Specifically,

11 the present invention discloses a system and method for transmitting stored user

12 selections from a restaurant menu application on a handheld computer to a terminal at a

13 drive-through lane or other ordering area of a restaurant.

14

15 <u>BACKGROUND OF THE INVENTION</u>

16 Drive-through lanes in many restaurants have added a very beneficial feature for

17 both the consumer and the proprietor. The drive-through lane allows the proprietor to

18 remain open longer, while the restaurant is being cleaned for the next day. The drive-

19 through lane also allows more efficient handling of customers with a reduction in staff.

20 The customer gets the benefit of staying in his or her vehicle while being serviced. This is

21 especially important to young families and to those with mobility problems, such as the

22 aged, infirm, or physically handicapped.

23 Drive-through lanes have been around for quite some time. However, in the

24 typical drive-through lane, a customer places an order by speaking into a microphone and

1   listens to the attendant on a speaker. The quality of these microphones and speakers is

2   often poor, resulting in miscommunication and errors in the order. By the time the

3   customer finds out about the error, he or she has already waited in line several minutes

4   and must then wait several more minutes for a correct order to be filled. Or, all too often,

5   the customer does not discover the error until he or she is home, in which case it is

6   generally too late to correct the error. This results in the loss of customer goodwill.

7   A limitation of previous drive-through ordering systems that do not use a

8   microphone is that they require the customer to lean out of the vehicle to press a button

9   on a menu or use a touch screen. This is awkward, if not impossible, for some people.

10 Also, this exposes the customer to rain, snow, etc. during the entire time that the order is

11 being entered into the system. Furthermore, this process can be quite lengthy for very

12 large orders, and can be intimidating or discouraging for people who do not feel

13 comfortable interacting with a computer terminal or touch screen to place an order.

14   Attempts have been made to provide alternate remote ordering systems. For

15 example, United States Patent No. 5,969,968 to Pentel discloses a remote ordering system

16 that enables customers to select items using a remote control device in response to

17 displays on a terminal at a drive-through lane. Unfortunately, however, the Pentel device

18 fails to address significant shortcomings in the prior art devices. For example, Pentel

19 provides no convenient and reliable way to store and communicate a pre-selected list of

20 selections from the restaurant menu. The device of Pentel merely allows a user to

21 sequentially enter specific item identification numbers and item quantities through a

22 remote keypad instead of through verbal communication. While customers often write

23 down a list of items on a piece of paper prior to going to the drive through lane, they still

3

1 have to read the list when it is time to place the order. Thus, even when using a device as

2 in Pentel, users remain at risk of entering the order incorrectly.

3   Other attempts have been made to provide remote ordering systems that enable a

4 user to maintain order lists for later use. For example, U.S. Patent No. 5,664,110 to

5 Green et al. discloses a remote ordering system implemented through an individual

6 display/processor unit which receives and stores a user's order list. After a list has been

7 compiled, the display/processor unit must then establish a telephonic or physical

8 communications link with a data format/transfer computer which controls the flow of

9 information between the display/processor unit and a merchant database. After such

10 communication has been established, the user's order list is transferred to the merchant

11 for order fulfillment through either future delivery to the customer or holding at the

12 merchant's location for later pickup by the customer. However, Green does not provide

13 any means by which a user may carry with them to the merchant's own location a

14 computerized listing of products available from the merchant, or any means by which the

15 user could transmit an order directly to the merchant while at the merchant's location, as

16 would occur in the case of a consumer at a restaurant.

17   Moreover, none of the prior art devices provide any means by which a user might

18 store a menu or other product listing application on a transportable computer to enable a

19 user to ensure both accurate order input, by recording menu selections as they are given

20 at a place other than the merchant's location, and accurate order transmission, by

21 enabling real-time on location communication between an order storage/input device and

22 an order receiving computer at the merchant's location.

1   Though this discussion is focused mainly on ordering at drive-through lanes,

2   many of the same shortcomings are present when ordering inside at a restaurant. There is

3   a large opportunity for forgetting to order a desired item or to have a miscommunication

4   when verbally placing an order. Furthermore, placing orders verbally is not efficient.

5   If there was a convenient and reliable way to store and communicate a pre-

6   selected list of selections comprising the restaurant order it would increase efficiency for

7   the restaurants, since some customers would have their selections made prior to arrival at

8   the drive-through or indoor ordering area, and it would be easier for customers, who

9   could store their previous orders for future re-use or modification, and who could record

10   their selections in the comfort of their homes or offices, rather than in the stressful

11   location of the restaurant ordering area. This would be particularly useful for large

12   families or people who frequently place orders for a large number of co-workers or

13   friends.

14   Handheld computers typically weigh less than 2 pounds and fit in a pocket. They

15   generally provide some combination of personal information management, database

16   functions, word processing and spreadsheets, Internet browser, email, portable telephone,

17   digital music player, etc. Handheld computers are usually equipped with means for

18   transmitting application files and other data to other computers or other handheld

19   computers. Despite their ability to store and transmit files, data, and applications, prior art

20   handheld computers do not include applications for storing and transmitting substantially

21   complete restaurant menus or restaurant menu selections to a drive-through or indoor

22   ordering station at a restaurant.

23

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a solution to the problem of storing substantially entire menus and menu selections on a remote ordering device. It is a further object of the present invention to provide a solution to the need for a convenient and efficient way to place an order at a drive-through or walk-up ordering station at a restaurant.

According to the present invention, a customer can load a menu application (computer program) onto a handheld computer. Using the menu program on the handheld computer the customer can record selections (menu selections) that he/she wishes to order during his/her next visit to a restaurant. These menu selections can then be saved as a file in the memory on the handheld computer. When the customer later arrives at the restaurant, he/she can select the file with the previously recorded menu selections and beam (transmit) it to a station adjacent to the drive-through lane, without having to get out of the car, or to a station at a walk-up ordering area.

When received by the drive-through or walk-up station, the order can then be automatically transmitted to a computer terminal or printer within the restaurant, where restaurant employees can fulfill the order.

Other objects, features and advantages of the present invention will be apparent from the accompanying drawings, and from the detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

1

2 The objects, features, and advantages of the present invention will be apparent

3 from the following detailed description of the invention with references to the following

4 drawings.

5 Fig. 1 is a schematic representation of the remote ordering system for a restaurant

6 drive-through lane of the present invention.

7 Fig. 2 is a schematic representation of the remote ordering system for a restaurant

8 walk-up station of the present invention.

9 Fig. 3 is a schematic representation of the method of the present invention for

10 remote ordering at a restaurant drive-through lane.

11 Fig. 4 is a schematic representation of the method of the present invention for

12 remote ordering at a restaurant walk-up station.

13 Fig. 5 is a schematic representation showing one embodiment of the menu

14 application (program).

15 Fig 6 is a schematic representation showing a second embodiment of the menu

16 application (program).

17 Fig 7 is schematic representation of the main screen of a handheld computer

18 comprising a restaurant menu application.

19 Fig 8 is a schematic representation of a screen from the restaurant menu

20 application according to one embodiment in which menus for several different restaurants

21 are accessible within the menu application.

22 Fig 9 is a schematic representation of an individual restaurant menu screen from a

23 restaurant menu application on a handheld computer.

1   Fig 10 is a schematic representation of a screen from a restaurant menu

2   application showing the user's list of current selections from a restaurant menu in a

3   restaurant menu application on a handheld computer.

4   Fig 11 is a schematic representation of a screen from a restaurant menu

5   application showing an individual selection from a restaurant menu in a restaurant menu

6   application on a handheld computer.

7   Fig 12 is a flow chart showing the general steps carried out by a user while using

8   a restaurant menu application on a handheld computer to make selections and save them

9   in a file.

10   Fig 13 is a flow chart showing the general steps carried out by a user to open,

11   modify, and save a previously saved file of selections using a restaurant menu application

12   on a handheld computer.

13   Fig 14 is a schematic representation of a terminal in restaurant used by restaurant

14   employees to fulfill orders.

15   Fig 15 is a schematic representation of a single order display from a terminal in

16   restaurant.

17   Fig 16 is a flow chart depicting steps of a customer interaction with the drive-

18   through station while beaming an order according to one embodiment of the invention.

19   Fig 17 is a flow chart depicting steps of a customer interaction with the walk-up

20   station while beaming an order according to one embodiment of the invention.

21

DETAILED DESCRIPTION

1

2   The present invention discloses a system and method for remote ordering at a

3   drive-through lane or walk-up ordering area at a restaurant. In the following description,

4   for purposes of explanation, specific nomenclature is set forth to provide a thorough

5   understanding of the present invention. However, it will be apparent to one skilled in the

6   art that these specific details are not required to practice the present invention.

7   Furthermore, the present invention is described using some of the possible embodiments.

8   For example, the present invention is described with reference to a handheld computer.

9   However, any personal digital assistant or electronic device can be used, provided that it

10   can store a menu application in resident memory, can transmit menu selections to a

11   terminal at a drive-through lane or walk-up ordering area at a restaurant using infrared or

12   other radiation, and can be easily carried in one hand or in a pocket. Thus, the teachings

13   of the present invention can be applied to a cellular phone, a personal digital assistant, an

14   electronic organizer, or other electronic devices that can be readily transported from a

15   home or office to a restaurant in a car or a pocket for use at a drive-through lane or walk-

16   up ordering area at the restaurant. Examples of commercially available handheld

17   computers useful in the present invention include the Kyocera pdQ 800 Smartphone and

18   Kyocera pdQ 1900 Smartphone; Casio Cassiopeia E-125 and Casio Cassiopeia EM-500;

19   Compaq Aero 1550 Pocket PC and Compaq iPAQ H3650 Pocket PC; Handspring Visor

20   Platinum and Handspring Visor Prism; Hewlett Packard Jornada 548 and Hewlett

21   Packard Jornada 720; Palm m100, Palm IIIc, Palm IIIxe, Palm Vx, Palm VIIx, Palm

22   m500 and Palm m505; S3 Diamond Mako; Sony Clie Handheld PEG-S300; and the

23   TRGpro. All of these commercially available handheld computers comprise infrared data

1   ports for transferring information from the handheld computer to another device. Other

2   suitable handheld computers are currently available, and it is understood that new

3   developments will lead to other personal electronic devices that satisfy the above-

4   mentioned requirements of the handheld computer of this invention.

5   Fig. 1 shows one embodiment of the remote ordering system 2. A handheld

6   computer 4 comprises a restaurant menu application 10 resident in memory 12. The menu

7   application 10 comprises substantially the entire menu (e.g., all "regular" menu items that

8   are not considered "specials" or available for a limited time) for at least one restaurant.

9   The handheld computer 4 further comprises input means, such as a keyboard, pressure

10   sensitive pad, stylus sensitive pad, touch screen, or microphone with voice recognition

11   software. Using the input means, the user can record selections from a menu in menu

12   application 10 and save them in a file in memory 12 on handheld computer 4. At any later

13   time, the user can open stored files and edit them if the user wishes to make changes.

14   When the user wishes to place an order at a restaurant using a drive-through lane, the user

15   transports the handheld computer with him/her in an automobile, stops the automobile

16   adjacent to drive-through station 20, and transmits (beams) a saved file comprising menu

17   selections via order transmission 22. Receiver 40 on drive-through station 20 then

18   receives the order transmission 22, comprising the menu selections. The menu selections

19   are then transmitted, via communications link 50, to a terminal in restaurant 60, where

20   the menu selections can be printed or displayed for restaurant employees, who can fulfill

21   the order. It is understood that drive-through station 20 and/or terminal in restaurant 60

22   may comprise microprocessors and/or software to facilitate order transmission 22 and

23   communications link 50, as are known and used in restaurants for transmitting orders

1   taken by a restaurant employee using a computerized cash register/order entry device.

2   Such microprocessors and/or software particularly provide for the processing or

3   formatting of data input by the restaurant employee into a form that may be printed or

4   displayed for other restaurant employees charged with fulfillment of the order.

5   With respect to order transmission 22, in the preferred embodiment it comprises

6   an infrared link based on Infrared Data Association (IrDA) compliant methodology.

7   However, in other embodiments it can instead comprise radio or other frequencies, the

8   key feature being that direct electrical contact is not required between handheld computer

9   4 and receiver 40.

10   Technology to achieve infrared transmission of data from a handheld computer to

11   another computer, device, or network is well known to those skilled in the art, and is

12   widely used in a variety of infrared-equipped devices, such as desktop computers,

13   portable computers, handheld computers, digital cameras, personal communications

14   services (PCS) handsets, and the like. Such technology is disclosed, for example, in U.S.

15   patents 5,075,792, 5,506,445, 5,617,236, 5,668,383, 5,922,037, 5,940,199, 5,953,507,

16   5,982,520, 6,029,213, 6,064,299, 6,088,730, 6,128,117, and 6,169,295, all of which are

17   incorporated herein by reference. Also, see IrDA Data Link Design Guide, pp. 1-28,

18   Hewlett Packard. The Infrared Data Association (IrDA), a non-profit international

19   standards organization that was founded in 1993, develops and promotes hardware and

20   software protocol standards for the infrared communications links in computing,

21   communications, and electronics consumer devices.

22   IrDA's infrared standards are now accepted by computer and telecommunications

23   hardware and software manufacturers worldwide. The IrDA serial infrared (SIR) physical

1   layer link specification Versions 1.0, 1.1 and 1.2 are provided to facilitate the point-to-

2   point communication between infrared interface port-equipped electronic devices (e.g.,

3   computers and peripheral devices) using directed half duplex serial infrared

4   communications links through free space. The documents specify the optical media

5   interface, and 0.576 Mbps, 1.152 Mbps and 4.0 Mbps modulation and demodulation.

6   They contain specifications for the Active Output Interface and the Active Input

7   Interface, and for the overall link.

8   The IrDA specifications provide guidelines for link access, link management and

9   for the physical transfer of data bits. The link access mechanism provides guidelines for

10   the software, which looks for other machines to connect or to sniff, to discover other

11   machines, to resolve addressing conflicts, and to initiate a connection, to transfer data,

12   and to cleanly disconnect. The link access standard specifies a frame and byte structure of

13   the infrared packets as well as the error detection methodology for the infrared

14   communication. The IrDA specifications for operating distance, viewing angle, optical

15   power, data read, and noise immunity enable physical interconnectivity between various

16   brands and type of equipment, such as a handheld computer and another computer.

17   Radio frequency links are also well known in the art and may be used in one

18   embodiment of the invention for transmitting (beaming) the orders from the handheld

19   computer to the drive-through station. For example, the Bluetooth Specification

20   (www.bluetooth.com) defines wireless technology standards and specifications for small-

21   form factor, low-cost, short-range radio links between mobile PCs, mobile phones and

22   other portable devices. The Bluetooth Special Interest Group is an industry group

23   consisting of leaders in the telecommunications, computing, and networking industries

1   that are driving development of the technology and bringing it to market. Version 1.0 of

2   the Bluetooth specification was published 1999 and is available at www.bluetooth.com.

3   In the preferred embodiment receiver **40** is an IrDA compliant infrared

4   transceiver.

5   With respect to communications link **50**, in the preferred embodiment it

6   comprises a direct electrical connection. However, in other embodiments it can be a radio

7   frequency or other type of transmission, provided that it is not at a frequency that

8   interferes with order transmission **22**.

9   In the preferred embodiment, drive-through station **20** is physically separated

10   from terminal in restaurant **60** by at least about three feet to as much as about 300 feet.

11   However, it is understood that in other embodiments the drive-through station **20** may not

12   be physically separated from terminal in restaurant **60** as, for example, if they are both

13   contained in a single console, the drive-through station **20** being exposed to the outside of

14   a building with the terminal in restaurant **60** being exposed to the inside of the building.

15   In the preferred mode, the drive-through station **20** will be placed in a drive-

16   through area of the restaurant, but it may also be placed somewhere else in the vicinity of

17   the restaurant. Thus the user can drive up to or walk over to the drive-through station **20**.

18   Fig. **2** illustrates another embodiment of the remote ordering system. In this

19   embodiment, handheld computer **4**, restaurant menu application **10**, memory **12**, and

20   order transmission **22** are as described in the previous embodiment described in Fig. **1**. In

21   this embodiment, however, the user places an order inside a restaurant **16** using a walk-up

22   station **90**. The user transports his/her handheld computer **4** with him/her to restaurant **16**,

23   walks to the walk-up station **90**, and transmits (beams) a saved file comprising menu

13

1 selections via order transmission **22**. Receiver **100** on walk-up station **90** then receives

2 the order transmission **22**, comprising the menu selections. The menu selections are then

3 transmitted, via communications link **50**, to a terminal in restaurant **60**, where the menu

4 selections can be printed or displayed for restaurant employees, who can fulfill the order.

5 It is understood that walk-up station **90** and/or terminal in restaurant **60** may comprise

6 microprocessors and/or software to facilitate order transmission **22** and communications

7 link **50**.

8 Order transmission **22** preferably comprises an IrDA compatible infrared link,

9 although it can instead comprise other frequencies such as radio frequency (for example,

10 Bluetooth), the key feature being that direct electrical contact is not required between

11 handheld computer **4** and receiver **100**.

12 In the preferred embodiment receiver **100** is an IrDA compliant infrared

13 transceiver.

14 In the preferred embodiment, when an order is beamed from the handheld

15 computer to the drive-through station or walk-up station, a file comprising the customer's

16 selections is transmitted from the memory in the handheld computer to a microprocessor

17 on the drive-through station or walk-up station, or to a microprocessor on the terminal in

18 restaurant, via infrared transceivers on the handheld computer and drive-through station

19 or walk-up station.

20 With respect to communications link **50**, it preferably comprises a direct electrical

21 connection. However, in less preferred embodiments it can be a radio frequency or other

22 type of transmission, provided that it is not at a frequency that interferes with order

23 transmission **22**.

1   Walk-up station **90** can be located anywhere inside the restaurant. In one

2   embodiment, it will be located within about 10 feet of a cash register so that the order can

3   be beamed instead of verbally delivered to the worker at the cash register. In another

4   embodiment walk-up station **90** will be in an express ordering lane of the restaurant, with

5   or without a cash register nearby.

6   In another embodiment, walk-up station **90** will be located at a personal customer

7   dining location within the restaurant, such as an individual table within restaurant **16**.

8   Various layouts of the system will be readily apparent to those skilled in the art.

9   For example, in one embodiment the drive-through station **20** or walk-up station **90** will

10   comprise a computer, which is part of a local computer network at the restaurant **16**.

11   Orders beamed to the drive-through station or walk-up station via receivers **40** or **100** (for

12   example, an IrDA or Bluetooth compliant transceiver) are then temporarily stored on the

13   computer and can be accessed by or transferred to or displayed on other computers,

14   display devices, or printers on the network, such as a computer that comprises the

15   terminal in restaurant **60** or computers operated by the cashier or drive-through attendant.

16   In a second embodiment, receivers **40** or **100** (for example, an IrDA or Bluetooth

17   compliant transceiver) on the drive-through station and walk-up station may be wired

18   directly to a computer within the restaurant which is accessible to the drive-through

19   attendant, the cashier, and to the employees responsible for fulfilling the order, either

20   directly or via a local computer network at the restaurant. In the preferred embodiments,

21   the drive-through station and walk-up station will comprise a display device capable of

22   displaying information originating from computers within the restaurant, which display

23   device may optionally be connected to a computer network at the restaurant.

15

1   Fig. 3 illustrates one embodiment of the method of the present invention. Using

2   the restaurant menu application 10 on a handheld computer 4, the user selects choices

3   from a menu (menu selections) and stores the menu selections in a file on the handheld

4   computer. When the user arrives at the drive-through station at the restaurant he/she

5   transmits (beams) the file containing the stored menu selections from the handheld

6   computer to the receiver on the drive-through station. The selections are then transferred

7   from the drive-through station to the terminal in restaurant. The selections are then

8   printed or otherwise displayed for restaurant employees who are responsible for fulfilling

9   the order.

10   Fig. 4 illustrates another embodiment of the method of the present invention.

11   Using the restaurant menu application 10 on a handheld computer 4, the user selects

12   choices from a menu (menu selections) and stores the menu selections in a file on the

13   handheld computer. When the user arrives at the walk-up station in the restaurant he/she

14   transmits (beams) the file containing the stored menu selections from the handheld

15   computer to the receiver on the walk-up station. The selections are then transferred from

16   the walk-up station to the terminal in restaurant. The selections are then printed or

17   otherwise displayed for restaurant employees who are responsible for fulfilling the order.

18   Fig. 5 illustrates one embodiment of the restaurant menu application (also referred

19   to hereinafter as menu application or program). In this embodiment, the menu application

20   can utilize menus from a plurality of restaurants and can store multiple menu selection

21   files for each restaurant. The various menus and files are organized by unique names or

22   numbers and stored in memory on the handheld computer. Referring again to Fig. 5,

23   restaurants A, B, and C each have a different menu, each of which is stored on the

1   handheld computer. Files containing menu selections are stored. For example, the file

2   designated Order A(1) in Fig. 5 contains all of the user's menu selections from the menu

3   of restaurant A. For example, it may contain all of the lunch selections for an entire

4   family for a specific visit to the restaurant. The file designated Order A(2) contains a

5   different complete set of menu selections from the menu of restaurant A. For example, it

6   may contain all of the dinner selections for the same entire family for a specific visit to

7   the restaurant. The N, such as in Order A(N), is a variable used to signify that any

8   number of menu selection files can be saved for each menu, with each file comprising all

9   of the selections for a particular order to be placed at a drive-through lane or walk-up

10   ordering area of a restaurant. Although Fig. 5 shows a case where there are three menus

11   on the handheld computer (for restaurants A, B, and C) it is understood that there is not a

12   limit to the number of menus that can be stored according to present invention, any

13   practical limit being due only to the amount of memory available on the handheld

14   computer.

15   Fig. 6 illustrates another embodiment of the menu application. In this

16   embodiment, each menu runs as an independent application on the handheld computer.

17   The various menus and files are organized by unique names or numbers and stored in

18   memory on the handheld computer. Referring again to Fig. 6, restaurants A, B, and C

19   each have a different menu and menu application, each of which is stored on the

20   handheld computer. Files containing orders (menu selections) are stored. For example,

21   the file designated Order A(1) in Fig. 6 contains all of the user's selections from the menu

22   of restaurant A. For example, it may contain all of the lunch selections for an entire

23   family for a specific visit to the restaurant. The file designated Order A(2) contains a

1   different complete set of menu selections from the menu of restaurant A. For example, it

2   may contain all of the dinner selections for the same entire family for a specific visit to

3   the restaurant. The N, such as in Order A(N), is a variable used to signify that any

4   number of files can be saved for each menu, with each file comprising all of the menu

5   selections for a particular order to be placed at a drive-through lane or walk-up ordering

6   area of a restaurant. Although Fig. 6 shows a case where there are three menu

7   applications on the handheld computer (for restaurants A, B, and C) it is understood that

8   there is no limit to the number of menus and menu applications that can be stored

9   according to present invention, any practical limit being due only to the amount of

10   memory available on the handheld computer.

11   The restaurant menu application can be written using programming languages and

12   techniques that are well know to those skilled in the art. For example, programming

13   methods for the Palm OS and Windows CE operating system are well known to those

14   skilled in the art.

15   Fig 7 shows a representation of the main screen 200 of the handheld computer in

16   one embodiment of the menu application. Icons 202 are present for various applications

17   contained on the handheld computer, including a restaurant menu application icon 204.

18   The menu bar 206 enables the user to tap with a stylus to select a sub-menu 210 or 214,

19   to make various commands, such as deleting, beaming, sorting applications into

20   categories, obtaining on-screen information, selecting preferences, or displaying general

21   information about the handheld computer. Scroll buttons 218 allow the user to use a

22   stylus to scroll down to view icons that do not fit on the current screen view. When the

23   user taps on the restaurant menu application icon 204, the user is presented with the view

1   schematically represented in Fig. **8** showing all of the restaurant menus that are available

2   in the restaurant menu application.

3   Referring to Fig. **8**, scroll buttons **300** are used to display additional restaurant

4   menu titles **302** that are off the visible screen **304**. Various commands are available in

5   sub-menus **310** and **316** via the menu bar **318** such as commands for deleting a menu

6   from the menu application, beaming a menu to another device, or displaying general

7   information about the restaurant menu application. When the user wishes to access a

8   specific restaurant menu, the user can tap on one of the restaurant menu titles **302** with a

9   stylus, which presents a new view illustrated in Fig. **9**, comprising individual restaurant

10   menu items for the selected restaurant.

11   Referring to Fig. **9**, scroll buttons **400** are used to display additional menu items

12   **406** that are off the screen **412**. Thus, while Fig. **9** particularly shows a listing of a

13   plurality, and more particularly six, distinct menu items, this is for exemplary purposes

14   only, and any number of menu items may be displayed by screen **412** at one time, with

15   scroll buttons **400** enabling a user to display the full listing of distinct menu items that

16   comprise the particular restaurant menu. Various commands, available in sub-menus (not

17   shown) can be accessed via the menu bar **418** using the stylus on the pressure sensitive

18   screen **412**. When the user wishes to select an item (add it to the list of selections

19   comprising the order to be placed), the user can tap on one of the menu items **406** with a

20   stylus to highlight that item. Once a menu item is highlighted, the user has several

21   options available. For example, tapping the on list box **424** adds that menu item to the list

22   of selections with a default quantity of 1. Once an item is already added to a list of

23   selections, a check would be present inside the on list box **424** when that item was

1   highlighted. Tapping again on the on list box **424** when a check is present would remove

2   that item from the list of selections. Alternatively, clicking on the edit control **430** after

3   highlighting a menu item will take the user to the view shown if Fig. **11** (discussed

4   below). At any time, the user can tap on the review selections control **436** with the stylus

5   to review the current list of selections, as illustrated in Fig. **10**.

6   Referring to Fig. **10**, scroll buttons **500** are used to display additional selections

7   **506** that are off the screen **510**. Various commands are available in sub-menus **514** and

8   **518** via the menu bar **524** (i.e. by tapping on the pressure sensitive menu bar **524** with the

9   stylus). Particularly noteworthy sub-menu commands are those that enable the user to

10   save the selections as a file on the handheld computer ("Save" and "Save As"), to open

11   previously saved files ("Open"), or to beam the selections ("Beam Selection File"). When

12   the user wishes to edit a particular one of the selections **506**, the user can tap on one of

13   the selections with a stylus to highlight that item. Once a selection is highlighted, the user

14   has several options available. For example, tapping the on list box **530** or clear item

15   control **536** removes that that item from the selections **506**; or tapping on the edit control

16   **540** takes the user to a view illustrated in Fig. **11** (discussed below); or tapping on the

17   clear all control **546** clears all selections **506**; or tapping on the view menu control **552**

18   takes the user back to a menu screen, such as that illustrated in Fig. **9**. Note that on the

19   view shown in Fig. **10** the currently selected quantities and the prices are displayed to the

20   right of each selection.

21   Fig. **11** illustrates the view seen by the user when editing an individual selection.

22   This view is accessed by highlighting an item then tapping on the edit control from the

23   views in Fig. **9** or Fig. **10**. Referring to Fig **11**, tapping the on list box **600** removes that

1   item from the list of selections. Tapping on the quantity field **606** enables the user to

2   enter a different quantity using a stylus. Tapping on the comment field **612** enables the

3   user to enter a comment or special request for this item. In the present illustration, the

4   user has entered a comment requesting "no pickles" on the cheeseburger. The user can tap

5   on the return to menu control **618** to return to the menu view, such as that illustrated in

6   Fig. **9**. Tapping on the review selections control **624** will bring the user to a screen such

7   as that shown in Fig. **10**. Tapping on the next control **630** or previous control **636** will

8   take the user to an edit item screen similar to that illustrated in Fig. **11** for the next or

9   previous item on the selection list, respectively.

10   In the embodiments illustrated in Figs. **7** through **11**, a single restaurant menu

11   application included menus from multiple restaurants. In other embodiments, wherein

12   each restaurant has its own menu application, one or more icons to access individual

13   restaurant menu applications will be present on the main screen of the handheld

14   computer. Tapping on any such icons, using a stylus on the pressure sensitive screen,

15   would access the appropriate restaurant menu application.

16   The restaurant menu application may also contain functionality to enable users to

17   find out nutritional or other information about specific items on the restaurant menu to

18   aid in the selection decision process.

19   In one embodiment of the method of the present invention, as outlined in Fig. **12**,

20   the user selects the restaurant menu application icon from main screen of handheld

21   computer; selects a specific restaurant menu from a list of restaurant menus displayed on

22   the screen; makes selections from the menu on the screen; then saves selections for future

23   use.

1   In another embodiment of the method of the present invention, as outlined in Fig.

2   **13**, the user selects the restaurant menu application icon from main screen of handheld

3   computer; selects a specific restaurant menu from the list of restaurant menus displayed

4   on the screen; opens a saved file of selections and makes modifications to the selections;

5   then saves modified selections for future use.

6   A copy of the restaurant menu application may optionally reside on a desktop

7   computer (PC), in addition to on the handheld computer. If it resides on a PC, menu

8   selections can optionally be made on the PC and then downloaded to the restaurant menu

9   application on the handheld computer prior to going to the restaurant and transmitting the

10   order to the drive-through or walk-up station.

11   In one embodiment, a restaurant or agent of the restaurant will provide a computer

12   program (restaurant menu application) comprising substantially the entire menu for the

13   restaurant. In another embodiment, a restaurant may provide files comprising part of a

14   program or database to work in conjunction with a restaurant menu application to enable

15   the restaurant menu application user to use that particular restaurant's menu in addition to

16   menus from other restaurants. These restaurant menu applications, computer programs,

17   parts of a program, or database files can be installed on the handheld computer via

18   several different installation means, including downloaded via the Internet, supplied via a

19   diskette, a CD, a zip disk, cable connection, removable storage device, or other means. Or

20   it can be transmitted (beamed) to the handheld computer from another handheld

21   computer, computer port, the restaurant drive-through or walk-up station, or other means.

22   Alternatively, it can come pre-installed on the handheld computer. The program could

23   first be installed on a PC and then transferred to the handheld computer, or it could be

1   directly installed on the handheld computer via installation means described above. The

2   ability to add and remove menus from the handheld computer using a PC is

3   advantageous, since users may wish to change which menus are on the handheld

4   computer, for example, as their preferences change over time.

5   It is understood that at any give time the menu application might not be 100% up-

6   to-date if the restaurant has changed its menu since the customer last updated his/her

7   restaurant menu application. And certain items, such as "specials" may not be up to date

8   or included at all in the restaurant menu application. It is understood that during the order

9   transmission or communications link the restaurant my wish to display on the drive-

10   through or walk-up terminal, or otherwise offer, selections that are not contained in the

11   user's restaurant menu application. It is further understood that the restaurant may offer to

12   transmit (beam) an updated version of the restaurant menu application to the user's

13   handheld computer before or after the order transmission.

14   Fig. 14 is a schematic illustration of a plurality of orders being displayed as order

15   displays **700** on a terminal in restaurant **60** according to one embodiment. The terminal in

16   restaurant comprises scroll buttons **710** to enable employees in the restaurant to view all

17   order displays in the event that they cannot all fit on the terminal in restaurant at the same

18   time.

19   Fig. 15 is a more detailed schematic view of an individual order display **700** on

20   the terminal in restaurant, according to one embodiment. It comprises a selection display

21   **760**; scroll buttons **766** for viewing the entire list of selections in the event that it is too

22   long to be displayed in its entirety; item check boxes **772** for the employees, using a

23   computer mouse, to mark items as completed as fulfillment of the order progresses; and

1 an order check box **778** for the employees, using a computer mouse, to mark when

2 fulfillment of the entire order is completed.

3   In one embodiment, the user will interact with the drive-through station as

4 outlined in Fig. **16**. When the drive-through station is in the ready state, it displays

5 message: "Begin beaming order at any time." The user initiates beaming of an order from

6 the restaurant menu application on a handheld computer. The drive-through station, upon

7 accepting initiation of beaming, displays a message: "Order is being beamed." When the

8 beaming process is completed, the drive-through station displays message: "Order

9 accepted, please proceed to the next window to pick up your order (Total = $10.35)."

10   In one embodiment, the user will interact with the walk-up station as outlined in

11 Fig. **17**. When the walk-up station is in the ready state, it displays message: "Begin

12 beaming order at any time." The user initiates beaming of an order from the restaurant

13 menu application on a handheld computer. The walk-up station, upon accepting initiation

14 of beaming, displays a message: "Order is being beamed." When the beaming process is

15 completed, the walk-up station displays message: "Order accepted. Please pay the cashier

16 $10.35."

17   Payment information optionally may be transmitted with, before, or after an order

18 transmission. Payment information refers to transmission of credit card information,

19 prepaid credit, debit card information, or similar means of charging the customer for the

20 purchase without necessitating the physical exchange of cash or coins during the

21 transaction.

22   The invention will now be described by the following non-limiting examples.

1   Example 1

2   In her home, a customer can download from a fast food restaurant's web site the

3   menu for the restaurant, in the form of a computer program (menu application) designed

4   to run on the Palm operating system. She then can install the menu application on a Palm

5   Vx handheld computer. The customer, still in her home, using her Palm Vx, can select

6   the items and quantities she wishes to order when she will later go to a drive-through at a

7   local franchise of the fast food restaurant. She can select the items by placing a check in

8   appropriate boxes, and indicate the quantity for each item selected. She also can record

9   any special requests, such as "no lettuce" in a comment field for each item. She can then

10   save the selections in a file on the Palm Vx for later transmission to the drive-through

11   station at the restaurant using the Palm Vx's IrDA compliant infrared communication

12   port. The customer can then get in her car, and drive to the local franchise of the fast food

13   restaurant, where she can drive to the drive-through ordering lane. When she approaches

14   the ordering station (drive-through station), she can stop the car and open the window so

15   that her Palm Vx can communicate with the drive-through station via infrared

16   transmission. She can then select "Beam selection file" from a list of commands on the

17   Palm Vx. A video screen on the drive-through station can then display a message: "Order

18   accepted, please proceed to the next window to pick up your order (Total = $10.35)." The

19   order can then be transmitted to a video monitor in the restaurant, where it can be

20   fulfilled by restaurant workers. On the drive-through station there can be a small sign that

21   reads: "Please press the 'update' button on this station to have copy of the latest version of

22   the menu program beamed to your handheld computer." This customer may not choose to

23   update during this visit, since she just downloaded the program for the company's web

1 site earlier in the day. The customer can then drive to the next window of the drive-

2 through lane, pay for the order, and receive the items.

3 <u>Example 2</u>

4 At work, a customer can offer to pick up lunch at a nearby restaurant X for

5 himself and a group of his coworkers. Prior to leaving, he can open the menu application

6 on his Compaq iPAQ H3650 Pocket PC (handheld computer), select the menu for

7 restaurant X, and record the selections for himself and several of his coworkers, and save

8 the file on the handheld computer. He can then put the handheld computer in his pocket

9 and walk or drive to restaurant X. After a brief wait in line, when he gets to the cash

10 register where orders are submitted, he can take the handheld computer out of his pocket

11 and beam the order to a walk-up station adjacent to the cash register. The cash register

12 attendant may ask a follow-up question, such as: "Thank you for your order sir, will there

13 be anything else?" After follow-up items are ordered, if any, the attendant can press a

14 button and the order can be displayed on a screen in the kitchen, where the order can be

15 fulfilled. The customer can then pay for the order, then receive the food a couple of

16 minutes later, then return to the office and distribute it to those coworkers who placed

17 orders.

18 Although the present invention has been described in terms of specific exemplary

19 embodiments, it will be appreciated that various modifications and alterations might be

20 made by those skilled in the art without departing from the spirit and scope of the

21 invention as set forth in the following claims.

22